

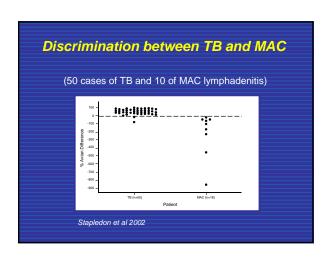
## Biomarkers of microbial exposure Antibodies Cytokines

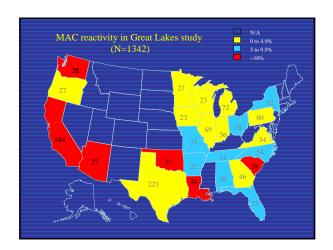
- -,----
- Proteins
- Gases

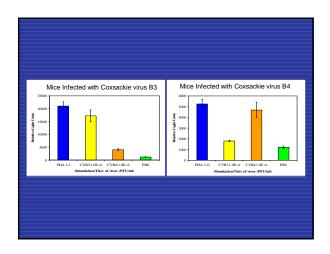
# Human specimens for biomarker assay Saliva (crevicular fluid) Urine Feces Blood/Serum

#### Uses of biomarkers of microbial exposure

- Determine the prevalence of exposure for large populations
- Determine demographic groups at risk
- Determine regional "hot spots"
- Determine etiological agents that cause illness
- Provide endpoints for epidemiological studies
- Starting point for exposure reconstruction







#### Advantages associated with using biomarkers of microbial exposure

- Highly specific and discriminating
- Integrate exposure over time
- Reduce uncertainty

### Challenges associated with using biomarkers of microbial exposure

- Distinguishing previous from current exposures
- Multiple sources of pathogens
- Multiple means of transmitting pathogens